February 28, 1996

MEMORANDUM

TO: Orville Green, Assistant Administrator
Permits and Enforcement

FROM: Brian R. Monson, Chief
Operating Permits Bureau

SUBJECT: Issuance of Tier II Operating Permit #071-00008 to
National Perlite Products Company (Malad City)

PURPOSE

The purpose of this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the controls of Air Pollution in Idaho) for issuing Operating Permits.

PROJECT DESCRIPTION

This project is for the issuance of a Tier II Operating Permit for the National Perlite Products Company facility located in Malad City, Idaho, in order to establish the facility as a synthetic minor source. All emission point sources existing at the facility are ducted to two (2) baghouses. Fugitive emission sources found at the facility are dust pickup stations (hoods) and unpaved roads.

SUMMARY OF EVENTS

On January 24, 1995, the Division of Environmental Quality (DEQ) received an operating permit application from National Perlite Products Company, Malad City. In addition to a meeting between DEQ and the company's Consultant on July 2, 1995, additional information were received on February 14, 1995, March 29, 1995, June 5, 1995, and August 28, 1995. The application was determined complete on September 27, 1995. On November 13, 1995, a proposed Tier II operating permit was issued for public comment. No comments were received.

RECOMMENDATIONS

Based on the review of the Operating Permit application, and on applicable state and federal regulations concerning the permitting of air pollution sources, the Bureau staff recommends that National Perlite Products Company, Malad City, be issued a Tier II Operating Permit. Staff also recommends that the facility be notified in writing of the obligation to pay permit application fees for the Tier II permit.

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cc: G. Spinner, SEIRO
OP File Manual
Source File
COF

November 13, 1995

MEMORANDUM

TO: Brian R. Monson, Chief
Operating Permits Bureau
Permits and Enforcement

FROM: Camille D. Ajaka, Air Quality Engineer
Operating Permits Bureau
Robert Baldwin, Air Quality Engineer
Operating Permits Bureau
Almer Casile, Air Quality Engineer
Operating Permits Bureau

THROUGH: Susan J. Richards, Air Quality Permits Manager
Operating Permits Bureau

SUBJECT: Technical Analysis for Proposed Tier II Operating Permit #071-00008, National Perlite Products Company, Malad City, Idaho

Purpose

The purpose for this memorandum is to satisfy the requirements of IDAPA 16.01.01 Sections 400 through 406 (Rules for the Control of Air Pollution in Idaho) for issuing Operating Permits (OP).

FACILITY DESCRIPTION

National Perlite Products Company (NPPC) located in Malad City, Idaho, is a perlite expanding plant manufacturing horticultural medium, insulating wall fill, cryogenic insulation, and other expanded perlite products. The plant consists of crude ore unloading equipment, ore storage silos, perlite expanding equipment, warehouse, and offices.

Project Description

This project is for an Operating Permit for the following existing point and fugitive emission sources.

Point Sources:

(1) Ore Unloading Baghouse: The baghouse was constructed in 1961.

Baghouse Specifications:

Manufacturer:	C&W Dust Systems
Model:	RA-280 Stationary
Air Capacity:	13,000 ft^3/min
Filtration Area:	2865 ft^2
Air/Cloth Ratio:	4.45 ACFM/ft^2
Pressure Drop:	6 in. H_2O
Control Efficiency:	99.9%

(2) Expander Baghouse: The baghouse was constructed in 1961. This unit is eroded badly and needs replacement. The ore unloading baghouse is connected to the exhausters of this unit to clean the air from this unit until a replacement is installed.

Baghouse Specifications:

Manufacturer:	Perlite Corporation
Model:	----
Air Capacity:	5,000 ft^3/min
Filtration Area:	694.5 ft^2
Air/Cloth Ratio:	7.2 ACFM/ft^2
Pressure Drop:	2 in. H_2O
Control Efficiency:	99.9%

Process Equipment

A. Ore Unloading System

(1) Unloading Hopper
(2) #1 unloading belt
(3) #2 unloading belt
(4) Storage Silos

B. Ore Reclaim System

(5) #5 reclaim conveyor
(6) #6 reclaim conveyor
(25) silo discharge conveyor
(7) expander surge bin
(8) expander vibratory feeder
(9) elevator

C. Expanding System

(10) perlite expander
(12) 14" rotary valve
(13) cooler separator
(14) cooler exhauster
(16) 10" rotary valve
(18) baghouse exhausters
(19) 8" rotary valve
(21) ore unloading exhauster
(22) combustion blower
(23) screw conveyor
(24) pressurized container
(26) bag packers
(27) positive displacement blower
(11) primary product collector
(15) cooler separator cyclone

Fugitive Sources:

(1) Dust pick-up stations (hoods) at ore unloading system and ore reclaim system.

(2) Unpaved roads

A more detailed process description is found in the operating permit application materials.

SUMMARY OF EVENTS

On January 24, 1995, the Division of Environmental Quality (DEQ) received an operating permit application from NPPC. In addition to a meeting between DEQ and the Company's Consultant on July 2, 1995, additional information were received on February 14, 1995, March 29, 1995, June 5, 1995, and August 28, 1995. The application was determined complete on September 27, 1995.

A public comment period is scheduled from November 27, 1995, to December 27, 1995.

DISCUSSION

1. Emission Estimates

Emission estimates were provided by National Perlite Products Company. The calculations were resubmitted by the applicant according to DEQ request. DEQ also estimated the emissions from all the sources of the facility (attached spreadsheet). Calculations were based on the maximum production rate of the perlite expander, one (1) ton per hour, and on the annual operating time, 4,000 hours per year.

The PM emissions were estimated by considering the amount of dust in the perlite ore (sieve analysis), the amount of dust that is carried by the product (engineering estimate), and mass balance around each process or equipment. As a conservative assumption, all PM emitted from the facility were considered to be PM-10 except for the emissions from unpaved roads.

Emissions from the propane combustion were estimated using emissions factors from AP-42 Table 1.5-2, 5th edition.

2. Modeling

No modeling was performed to assess ambient air quality impacts of this facility.

3. Area Classification

National Perlite Products Company is located at Malad City, Oneida County, Idaho. This area is located in AQCR 61. The area is classified as attainment or unclassifiable for all federal and state criteria air pollutants (i.e., PM, PM-10, CO, NO_x, VOCs, and SO_x).

4. Facility Classification

The facility is not a designated facility as defined in IDAPA 16.01.01.006.25. The facility is classified as an A2 source because the actual emissions of PM are less than 100 tons per year.

5. Regulatory Review

This operating permit is subject to the following permitting requirements:

a.	IDAPA 16.01.01.401	Tier II Operating Permit
b.	IDAPA 16.01.01.403	Permit Requirements for Tier II Sources
c.	IDAPA 16.01.01.404.01(c)	Opportunity for Public Comment
d.	IDAPA 16.01.01.404.04	Authority to Revise or Renew Operating Permits
e.	IDAPA 16.01.01.406	Obligation to Comply
f.	IDAPA 16.01.01.470	Permit Application Fees for Tier II Permits
g.	IDAPA 16.01.01.625	Visible Emission Limitation
h.	IDAPA 16.01.01.650	General Rules for the Control of Fugitive Dust
i.	IDAPA 16.01.01.675	Fuel Burning Equipment -- Particulate Matter
j.	IDAPA 16.01.01.700	Particulate Matter -- Process Weight Limitations

FEES

Fees apply to this facility in accordance with IDAPA 16.01.01.470. The facility is subject to permit application fees for Tier II permits of five hundred dollars ($500.00). IDAPA 16.01.01.470 became effective on March 7, 1995.

RECOMMENDATIONS

Based on the review of the Tier II Operating Permit application and of applicable state and federal regulations concerning the permitting of air pollution sources, staff recommends that National Perlite Products Company, Malad City, Idaho, be issued a Tier II Operating Permit for the sources that are described in the facility's permit application. An opportunity for public comment on the air quality aspects of the proposed permit shall be provided as required by IDAPA 16.01.01.404.01. Staff also recommends that the facility be notified of the Tier II permit fee requirement in writing. This fee will be applicable upon issuance of the permit.

SRM\SJR\CDA:jcj...\permit\nppc\nppc.TAM

cc: G. Spinner, SEIRO
Source File
COF

National Perlite Products Company
P.O. Box 162
Malad City, Idaho 83252

Contact: Charles Smith
PTC Permit No.

Tier II application information

Production Data		Reference
Max. Hourly Rate (tph)	1	
Act. Hourly Rate (tph)	1	
Operating Time (hr/yr)	4000	
Dust in Ore (%)	3	Seive analysis
Unloading Hopper		
Airborn Dust (%)	5	Engineering estimate
Unloading rate (T/hr)	60	
Hood capture efficiency (%)	99	
Building Efficiency (%)	90	Fug. Dust Cont. Tech.
Baghouse Efficiency (%)	99.9	
Unloading Time (hr/yr)	67	
#1 & #2 Unloading Belt		
Airborn Dust (%)	25	
Unloading rate (T/hr)	60	
Hood capture efficiency (%)	98	

Ore Reclaim System	
Dust in Ore (%)	2
Airborn Dust (%)	25
Discharge rate (T/hr)	30
Discharge Time (hr/yr)	134
Expanding System	
Max. Combustion Rate (gal/hr)	60
Norm. Combustion Rate (gal/yr)	2.4E+05
N. G. Heat Content (Btu/gal)	91800

Source	Pollutant	PM in Ore (lb/ton)	Airborn PM (lb/ton)	Fugitive PM (lb/hr)	Baghouse PM (lb/hr)	Fugitive PM (T/yr)	Baghouse PM (T/yr)
Unloading Hopper	PM	60	3	0.180	0.178	0.006	0.006
	PM−10	60	3	0.180	0.178	0.006	0.006
#1 Unloading Belt	PM	57	14.25	1.710	0.838	0.057	0.028
	PM−10	57	14.25	1.710	0.838	0.057	0.028
#2 Unloading Belt	PM	42.75	10.6875	1.283	0.628	0.043	0.021
	PM−10	42.75	10.6875	1.283	0.628	0.043	0.021
Ore Storage Silos	PM	Settling rate of PM >		0.000	0.000	0.000	0.000
	PM−10	Velocity created by vent		0.000	0.000	0.000	0.000
Total PM				*3.173*	*1.645*	*0.106*	*0.055*
Ttal PM−10				*3.173*	*1.645*	*0.106*	*0.055*
Silo Discharge Conveyor	PM	40	10	0.600	0.294	0.040	0.020
	PM−10	40	10	0.600	0.294	0.040	0.020
#5 Reclaim Belt	PM	30	7.5	0.450	0.220	0.030	0.015
	PM−10	30	7.5	0.450	0.220	0.030	0.015
#6 Reclaim Belt	PM	22.5	5.625	0.338	0.165	0.023	0.011
	PM−10	22.5	5.625	0.338	0.165	0.023	0.011
Surge Bin	PM	16.875	4.21875	0.253	0.124	0.017	0.008
	PM−10	16.875	4.21875	0.253	0.124	0.017	0.008
Elevator	PM	12.55625	3.1640625	0.190	0.093	0.013	0.006
	PM−10	12.55625	3.1640625	0.190	0.093	0.013	0.006
Total PM				*1.330*	*0.897*	*0.123*	*0.060*
Ttal PM−10				*1.330*	*0.897*	*0.123*	*0.060*

Source	Pollutant	E. F. lb/1000 gal	Reference	Control Equipment	Baghouse PM (lb/hr)		Baghouse PM (T/yr)
Expander (Combustion)	PM	0.4	T 1.5−2	none	0.024		0.048
	PM−10	0.4	T 1.5−2	none	0.024		0.048
	SOx	0.1S	T 1.5−2	none	0.000		0.000
	NOx	14	T 1.5−2	none	0.840		1.680
	CO	1.9	T 1.5−2	none	0.114		0.228
	VOC	0.5	T 1.5−2	none	0.030		0.060

Source	Pollutant	Input to unit (lb/hr)	Unit Efficiency	Product (lb/hr)	Baghouse PM (lb/hr)		Baghouse PM (T/yr)
72" Cyclone	PM	2000	90	1800.000	0.200		0.400
	PM−10	2000	90	1800.000	0.200		0.400
Cooler Separator	PM	1800	83	1494.000	0.000		0.000
	PM−10	1800	83	1494.000	0.000		0.000
Fines Cyclone	PM	306	93	284.580	0.021		0.043
	PM−10	306	93	284.580	0.021		0.043
Total PM					*0.245*	*0.000*	*0.491*
Total PM−10					*0.245*	*0.000*	*0.491*

Traffic on Unpaved Roads
s=Road Silt Content (%) 4.8
S=Vehicle Speed (mph) 5
p= # of days (<.01 in prp.) 90
E=k(5.9)(s/12)(S/30)(W/3)^0.7(w/4)^0.5[(365−p)/365]

PM Source Description	k	Mean Wt. W (tons)	# of wheels w	Cont. Eff. %	E. Factor lb/VMT	VMT	Fugitive PM T/yr
Semi Trailer (PM)	1	52	30	0	5.9779	21	0.063
Semi Trailer (PM−10)	0.36	52	30	0	2.1520	21	0.023